

*Survey Instrument for the Predominantly Undergraduate Institutions (PUI)
of the West Virginia Biomedical Research Infrastructure Network (WV-BRIN)*

Institution: Alderson-Broaddus, Bluefield State, Fairmont State, Salem International University, Shepherd College, West Liberty State College, West Virginia State College, Wheeling Jesuit College.

Part I. Baseline Institutional Data

1. What is your total undergraduate enrollment?

AB-731
Bluefield-2,768
FSC-6,500
Salem-455
Shepherd-4,400
WLSC-2,633
WVSC-4,875
Wheeling-1,249

2. What is your total graduate enrollment?

AB-71
Bluefield-0
FSC-0
Salem-82
Shepherd-0
WLSC-21
WVSC-35
Wheeling-217

3. What is your enrollment in WV-BRIN related science majors?

	Undergraduate	Graduate
Biology	AB-13 FSC-50 Salem-20 Shepherd-114 WLSC-66(+1double major) WVSC-283 Wheeling-69	
Biotechnology	Salem-22 WLSC-5	Salem-5
Chemistry	AB-4 FSC-10 Shepherd-40 WLSC-11(+3 double major)	

	WVSC-40	
	Wheeling-28	
Computer Science	AB-29	
	Bluefield-45	
	FSC-20	
	Salem-23	
	Shepherd-254	
	Wheeling-68	
Math	AB-3	
	FSC-10	
	Salem-1	
	Shepherd-16	
	WLSC-2	
	WVSC-27	
	Wheeling-11	
Other applicable majors (identify)		
Engineering	Shepherd-31	
Environmental	Shepherd-90	
	Wheeling-11	
Applied Science	Bluefield-53	
Pre-Med	AB-21	
	FSC-30	
Physician Assistant	AB-96	AB-71
Nursing	AB107	
Natural Assoc.		AB-41
Radiography	AB-12	
Pre-Vet. Dent. Phys. Thrpy. Pharm	AB-15	
Environmental Science	Salem-9	
Information Technology	Salem-13	

4. How many science degree graduates have been in these WV-BRIN related science majors in recent years? (Indicate B.S. and M.S./M.A. separately)

	2001		2000		1999	
	BS	MS	BS	MS	BS	MS
Biology	AB-2		AB-6		AB-4	
	FSC-10		FSC-10		FSC-10	
	Salem-2		Salem-5			
	Shepherd-11		Shepherd-12		Shepherd-12	
	WLSC-11		WLSC-5		WLSC-12	
	WVSC-18		WVSC-20		WVSC-29	
	Wheeling-16		Wheeling-9		Wheeling-5	
Biotechnology	Salem-15	1	Salem-12		Salem-11	2
	WLSC-2		WLSC-1		WLSC-1	
Chemistry			AB-3			
	FSC-3		FSC-3		FSC-3	
	Shepherd-4		Shepherd-8		Shepherd-5	
	WLSC-3		WLSC-1		WLSC-3	

Computer Sci.	WVSC-5	WVSC-7	WVSC-13
	Wheeling-6	Wheeling-5	Wheeling-7
	AB-2	AB-4	AB-6
	Bluefield-6	Bluefield-8	Bluefield-7
	FSC-6	FSC-6	FSC-6
Math	Salem-2	Salem-4	Salem-5
	Shepherd-26	Shepherd-26	Shepherd-18
	Wheeling-5	Wheeling-6	Wheeling-7
		AB-1	
	FSC-2	FSC-2	FSC-2
Other majors	Shepherd-4	Shepherd-3	Shepherd-6
		WLSC-1	WLSC-2
	WVSC-2	WVSC-2	WVSC-2
	Wheeling-6	Wheeling-2	Wheeling-3
	Nursing	AB-11	AB-17
Natural Assoc.	AB-9	AB-14	AB-14
Radiography		AB-2	AB-2
Physicians Asst.	AB-40 17	AB-47 21	AB-38 22
Applied Science	Bluefield-4	Bluefield-6	Bluefield-4
Pre-Med	FSC-8	FSC-8	FSC-8
Environmental Sci.	Salem-8	Salem-3	Salem-7
	Shepherd-15	Shepherd-5	
	Wheeling-5	Wheeling-3	Wheeling 4
Informational Tech.		Salem-8	

5. **How many BS and MS/MA students have participated in summer research internships over the last three years?**

	2001		2000		1999	
	BS	MS	BS	MS	BS	MS
Biology	AB-4		AB-2		AB-5	
	Shepherd-12		Shepherd-11		Shepherd-13	
	WVSC-5		WVSC-4		WVSC-3	
	Wheeling-1				Wheeling-1	
Biotechnology	FSC-3		FSC-3		FSC-3	
	Salem-1		Salem-1		Salem-3	
	WLSC-4		WLSC-2		WLSC-2	
Chemistry	AB-1		AB-2		AB-3	
	Shepherd-4		Shepherd-5		Shepherd-4	
	WVSC-3		WVSC-2		WVSC-2	
	Wheeling-2		Wheeling-2		Wheeling-4	
Computer Sci.	AB-4					
	Salem-1					
Math	AB-2		AB-1			
Other majors						
Applied Science			Bluefield-1		Bluefield-1	

Environmental

Salem-1

Salem-1

Shepherd-10

Shepherd-8

6. What are the existing undergraduate research activities available on your campus? (Indicate whether the activity is a class/institutional requirement or independent/faculty-sponsored.)

AB- USDA Grant - Molecular Biology – Faculty sponsored

Appalachian College Association - Faculty/Student Research Grants

Research Methods Class

Collaborative Grants – Faculty sponsored

Senior Projects – institutional requirement

Grants and Contracts for Biomonitoring using aquatic insects and crayfish – Faculty sponsored

Bluefield- Institutional requirement: All Applied Science seniors must do an independent research project and present in front of science faculty.

FSC- Molecular, Ecology, Chemistry

Salem- At SIU all students are encouraged to engage in research or other hands-on activities with faculty members in their discipline. For the science and computer students there are a number of structured and non-structured methods in place that are used to encourage and support student involvement in research.

Two forms of undergraduate research activities are available at the SIU campus. Students can take research as electives (institutional requirements), or they can volunteer their time to perform faculty-sponsored research during the academic year. Summer research experience is available as faculty sponsored activities.

The undergraduate research activities are molecular biology, biotechnology and environmental science based. Activity ranges from DNA sequencing, gene cloning, expression of gene in prokaryotes and eukaryotes, purification and testing of proteins by molecular, chromatographic and immunologic methods, detection of antibodies, sero-epidemiology, molecular epidemiology, plant and animal tissue culture, cataloging of bird and insect species, water quality testing. Students also take part in career-related internship with an outside agency/company (including Westvaco, WV Dept. of Environmental Protection, Sturm Environmental, WV Division of Highways, Ecosystem Conservation Society of Japan [Tokyo], US Food and Drugs Administration, US Department of Energy Laboratories at the Los Alamo, and research laboratories in other universities during the summer).

In computer science students are given opportunities to work with all aspects of mainframe computing, network engineering, web design, and other activities. Students use work-study, special projects, and other opportunities to gain this type of experience. A strong mentoring system exists for the advanced students.

Shepherd- The research is an institutional requirement in the majors listed in Q5. Doing the research on campus is an option and is faculty sponsored

WLSC- (Blank)

WVSC- The Chemistry and Biology departments offer course credit for Directed Student Research; this is not a requirement for graduation but 4 credits (16hrs/week) can be substituted

for one department elective. Between the two departments, there are 10 to 15 students per semester who are involved in research projects. There is an annual research festival in the spring of each year for students to present research. Four of five students each year receive summer stipends as NASA scholars to work with WVSC faculty during the summer. Land-Grant funds a few students to work during the summer as “student workers” to assist with on-going projects.

Wheeling- Biology majors do a research activity over their junior and senior years under the direction of a faculty member. In Chemistry, 2 students have done a NASA grant and 3 others have done research under a chemistry faculty member.

7. How many graduates have matriculated in a graduate program in one of the following science fields?

	2001	2000	1999
Biology	FSC-3 WLSC-2 WVSC-2 Wheeling-1	AB-2 FSC-2 WLSC-2 WVSC-2	AB-3 FSC-1 WLSC-2 WVSC-3
Biomedical Science	Bluefield-4 Salem-2 WVSC-1	Bluefield-3 Salem-2 WVSC-1	Bluefield-4 Salem-4 WVSC-1
Biotechnology		Salem-3	Salem-2
Chemistry	AB-1 FSC-3	AB-1 FSC-3 WVSC-1	AB-1 FSC-3 WVSC-2
Computer Science			Wheeling-eleven over the last three years Salem-1
Math			
Other majors (identify)			
Medical/Dental	AB-3	AB-2	AB-1
Environmental	Salem-2	Salem-1	Salem-2

8. How many faculty members are in the following WV-BRIN related disciplines?

- Biology**
- AB-3
- Bluefield-2
- FSC-8
- Salem-2
- Shepherd-6
- WLSC-6
- WVSC-10
- Wheeling-6
- Biotechnology**
- Salem-2(+2 vacancies)
- WLSC-1
- Chemistry**

AB-2
Bluefield-2
FSC-4
Salem-1
Shepherd-4
WLSC-2
WVSC-6
Wheeling-3 (+2 half-time)

Computer Science

AB-2
Bluefield-2
FSC-3
Salem-1 ½
Shepherd-4
Wheeling-3

Math

AB-3
Bluefield-5
FSC-4
Salem-3
Shepherd-4
WVSC-9
Wheeling-6 (+1 part-time)

Other related disciplines (identify)

Physics

Bluefield-2
Salem-1
WLSC-2

Environmental

Shepherd-4

9. What is the expected teaching load in credit hours per semester?

Biology

AB-12
Bluefield-12
FSC-12
Salem-14 semester hours*
Shepherd-12
WLSC-12-15
WVSC-12 (up to 16 contact hours)
Wheeling-12

Biotechnology

Salem-6 semester hours*
Shepherd-12
WLSC-12-15
Wheeling-12

Chemistry

AB-12

Bluefield-12
FSC-12
Salem-14 semester hours*
Shepherd-12
WLSC-12-15
WVSC-12 (up to 16 contact hours)
Wheeling-12

Computer Science

AB-12
Bluefield-12
FSC-12
Salem-14 semester hours*
Shepherd-12
Wheeling-12

Math

AB-12
Bluefield-12
FSC-12
Salem-14 semester hours*
Shepherd-12
WLSC-12-15
WVSC-12
Wheeling-12

Other applicable majors (identify)

Physics

Bluefield-12
Salem-14 semester hours*
WLSC-12-15

** SIU has two types of faculty appointments: Regular with 8 modules (months) of commitment: 7 teaching and 1 module of research. Research has 3 modules of teaching and the rest of the time is for research regardless of length of contract (8 months or 12 months). All courses are 4 semester hours; faculty members teach 7 courses per year.*

10. What institutional support (release time, summer salary, etc.) is available for faculty research?

AB-Sabbatical Leave, Faculty Development Funds, and \$300 per year for travel.

Bluefield-N/A

FSC-None

Salem- All faculty members are provided with at least 1 module of paid research time in a calendar year. Travel funds of \$350 are available to non-research faculty, if they are presenting a paper. Research efforts are supported by the university with matching funds and/or release time. Research faculty members have written into their contracts funding for post-docs, travel, and research funding levels. These are negotiated amounts and vary. Research faculty members are expected to acquire extramural funding. Faculty members who teach more than 3 courses per year may also be funded for research or allowed to use SIU facilities to conduct research in consortia relationships

Shepherd- 4 summer stipends @\$2,500 each (Campus Wide)

3 summer stipends @ \$3,000 each (Div. Nat. Sci. & Math only)
4 three credit hour course release time (Campus Wide)

WLSC-None listed

WVSC- There are currently 5 Biology faculty and 3 Chemistry faculty who are receiving support for research activities from the Land-Grant office. Faculty are required to submit annual proposals to Land-Grant for money to support research including two months summer salary. They may also be given necessary equipment and money to cover release from one class (4 credit hrs). Five Biology faculty are currently on release from one course and all receive summer money. Academic Affairs has \$15K/ yr to support research and scholarly activities and makes annual awards of up to \$1000. Academic Affairs provides one semester sabbatical leave for one or two faculty per year. We have been allowed, as of three years ago, to combine two sections of certain courses into one common lecture, cutting contact time by about 2 hours/week.

Wheeling-There is summer research grants available through WJU. Faculty are either on 9,10, or 12 month contracts.

11. What is the institutional expectation for research? Is it required for promotion and/or tenure?

AB-No expectation, not required for promotion.

Bluefield-N/A

FSC-No

Salem-SIU expects all faculty members to engage in research or the pursuit of advanced education in their field. It is a requirement for promotion and for contract renewal. SIU does not have a tenure system.

Shepherd-Professor: Scholarly work as evidenced by publications and academic work within field(s) of specialization. Assoc. Professor: Some publication, research papers.

WLSC-Encouraged but not required and generally not supported at level requiring reduced teaching load.

WVSC- Faculty members in the School of Natural Sciences and Mathematics are required to “establish a research program that involves students”. Research & scholarly activities represent one of five areas considered for P&T and faculty must demonstrate excellence in three of the areas. What would happen if someone would refuse to attempt research is a mystery.

Wheeling-For promotion and tenure, WJU demands “scholarly activity” and “professional development”.

Part II. Institutional interest and background in WV-BRIN Program

- 1. Please provide the name, department and e-mail address/telephone of faculty members who are interested in participating in the WV-BRIN program.**

Name	Department	E-mail address/telephone	Existing research interests
Sharon Molnar	WVSC- Chemistry	molnars@mail.wvsc.edu 766-3042	Photochemistry
Ernie Sekabunga	WVSC- Chemistry	sekabuej@mail.wvsc.edu 766-5132	Inorganic chemistry
Xiahong Zhang	WVSC- Mathematics	zhangxi@mail.wvsc.edu 766-3398	Math. modeling
Rich Ford	WVSC- Biology	fordri@mail.wvsc.edu 766-3102	Micro/ molecular
Rob Harris	WVSC- Biology	harrisro@mail.wvsc.edu 766-3128	Animal physiology
B. Lidgerding	Shepherd- Biology	blidgerd@shepherd.edu	Immunology/cell develop.
R. Warburton	Shepherd- Chemistry	rwarburt@shepherd.edu	Protein structure/function
D. Wing	Shepherd- Biology	dwing@shepherd.edu	Mol Biology
K. Conley	Shepherd- Biology	kconley@shepherd.edu	Neurophysiol
D. Dilella	Shepherd- Chemistry	ddilella@shepherd.edu	Analytical methods
E. Volker	Shepherd- Chemistry	evolker@shepherd.edu	Steroids
Phil Yeager	Bio	PYeager@mail.fscwv.edu	Ecology/Molecular
Mark Flood	Bio	MFlood@mail.fscwv.edu	Molecular/Forensics
Phil Mason	Bio	PMason@mail.fscwv.edu	
Al Magro	Bio	AMagro@mail.fscwv.edu	Tissues
Steve Roof	Bio	SRoof@mail.fscwv.edu	Molecular
Donald Mercer	Chemistry	304-243-2334	Stroke in environment
Leslie Quinn	Biology	304-243-2331 laquinn@wju.edu	Cardio-vascular physiology
Donald Serva	Biology	304-243-2084 dserva@wju.edu	Physiology
Patrick Muldoon	Arts & Sciences	pmuldoon@bluefield.wvnet.edu	Calcium & Lipids

Edward Omolo	Arts & Sciences	eomolo@bluefield.wvnet.edu	DNA Analysis
Anthony Woart	Arts & Sciences	awoart@bluefield.wvnet.edu	Social Epidemiology
Yi Chen	Biology	chen@ab.edu 457-6277	Molecular biology parasite-host predator
John Enz	Biology	Jenz555@aol.com 457-6252	Biomonitoring
Sheikh Ahmed	Chemistry	ahmed@ab.edu 457-6248	Carbohydrate, Water quality, Synthesis
David Unger	Biology	Unger_d@ab.edu 457-6252	Large predator-prey interaction
Tamanna Ahmed	Chemistry	Ahmed_t@ab.edu 457-6248	Enzyme inhibition
Edinger, B	Bioscience	edinger@salemiu.edu 304-782-5214	Ecology, study of bird and insect communities
Lai, P.K.	Bioscience	lai@salemiu.edu 304-782-5575	Molecular immunology, DNA vaccination and animal/human virology
Rodgers, S	Bioscience	rogers@salemiu.edu 304-782-5585	Genetic transformation of wetland plants for vaccine production and heavy metal remediation.
Roy, J	Bioscience	roy@salemiu.edu 304-782-5575	Organic chemistry; Pharmacology chem.; and health research
Gum, S.	Math. &Technology	gum@salemiu.edu 304-782-5212	Math/informatics, workshops, biomedical software development
Hensel, R	Math & Techno logy	hensel@salemiu.edu 304-782-5509	Math Education/work shop; statistics
Lee, Huey Miin	Math & Techno logy	lee@salemiu.edu 304-782-5575	Mini-grants, workshops on software, math models development
Phillips, B.	Math & Techno logy	brooke@salemiu.edu 304-782-5213	Bioinformatics, math modeling, software and informed consent workshops

Weaver, S.	Math & Technology	weaver@salemiu.edu 304-782-5616	Bioethics and clinical data activities, workshops, symposia
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2. How many faculty members have submitted a biomedical or molecular biology research grant within the last three academic years?

	2001	2000	1999
Biology	AB-1 FSC-3 Salem-1 Shepherd-2 WVSC-1	FSC-1 Salem-2 Shepherd-3 WVSC-1	FSC-1 Salem-2 Shepherd-2 WVSC-1
Biotechnology	Salem-3 WVSC-1	Salem-2 WVSC-1	Salem-6
Chemistry			Salem-1
	Shepherd-3	Bluefield-1 Shepherd-2 WVSC-1 Wheeling-1	Shepherd-3 WVSC-1
Computer Science			
Math			
Other majors (identify)			
Physics		Salem-1	Salem-1

3. How many faculty members have had a research grant funded within the last three academic years? (External funding only; Indicate, in parentheses, the number of NSF EPSCoR/ NIH Idea awards)

	2001	2000	1999
Biology	AB-2 FSC-5 Salem-Two(WV-DOH;NASA-EPSCoR) Shepherd-1 WVSC-1(NSF)	AB-1 FSC-3 Shepherd-2	AB-2 FSC-5 Shepherd-1 WVSC-1(NSF)
Biotechnology	Salem-6(NIH,NSF,USDA,WVDOH,NASA) WVSC-1(USDA)	WVSC-1(USDA)	
Chemistry		AB-1	AB-2
	Salem-1(NASA-EPSCoR) Shepherd-2 Wheeling-2(EPSCoR)	Shepherd-2	Shepherd-2
Computer Science	AB-1	AB-1	

Math	Shepherd-2	
Other majors (identify)		
Physics	Salem-2(NASA-EPSCoR)	
Environmental	Shepherd-2	Shepherd-2

4. How many faculty members have attended a national/international research meeting in any biomedical discipline in the last three academic years?

	2001	2000	1999
Biology	AB-2 FSC-1	AB-1 FSC-1 Salem-1	AB-1 FSC-2 Salem-2
Biotechnology	Shepherd-3 WVSC-4	Shepherd-3 WVSC-4	Shepherd-2 WVSC-3
Chemistry	Salem-2 Bluefield-1 FSC-1 Shepherd-3 WVSC-2	Salem-3 FSC-1 Shepherd-3 WVSC-1	Salem-5 FSC-1 Shepherd-3 WVSC-2
Computer Science			
Math	Shepherd-2	Shepherd-2	Shepherd-2
Other majors (identify)			
?	Shepherd-3	Shepherd-3	Shepherd-3

Part III: WV-BRIN Training & Mentoring Core (TMC) Program

1. Which of the following potential WV-BRIN mentoring activities are of interest to faculty/students at your institution (provide an estimated number of interested faculty/students)?

Opportunity	Estimated Number
Writing research grants	AB-10 FSC-3 Salem-2 fac/2 students Shepherd-5 WLSC-3 Wheeling-5
Training in cell/molecular biology laboratory methods for research	AB-6 Bluefield-2/2 FSC-2 Salem-1 faculty Shepherd-5/25 WLSC-3 WVSC-6 Wheeling-4
Bioinformatics and software use	AB-6

	FSC-2 6 students/3 faculty Shepherd-5/25 WLSC-3 WVSC-5 Wheeling-2
Informed consent/human experimentation training	AB-1 Salem-1 faculty Shepherd-2/25 WVSC-3 Wheeling-2
Confidentiality of clinical data training	AB-1 Salem-1 faculty Shepherd-1/25
Bioethics symposium on genetic testing	AB-5 Salem-1 faculty Shepherd-3/25 Wheeling-3
Student participation in programs to encourage continuing graduate education in biomedical science.	AB-8 Bluefield-2/5 FSC-2 Salem-1 fac/2 students Shepherd-5/50 WVSC-2 Wheeling-5
WebCT instruction and Bioinformatics teaching modules	AB-4 FSC-3 Salem-5 faculty Shepherd-5/50 WLSC-3 WVSC-3 Wheeling-2
Others	

2. Which of the following WV-BRIN research programs are of interest to faculty/students at your institution (provide an estimated number of interested faculty/students)?

Opportunity	Estimated Number
Biomedical research initiation grants	AB-4 Bluefield-2 FSC-3 Salem-3 fac/2 students Shepherd-5/10 WVSC-2 Wheeling-2
Equipment grants	AB-6 Bluefield-2 FSC-3 Salem-3 faculty

	Shepherd-5/ WLSC-3 WVSC-2 Wheeling-4
Faculty Summer Research fellowships	AB-3 Bluefield-3 Salem-3 faculty Shepherd-5/ WLSC-3 WVSC-3
Developing collaborative biomedical research programs	AB-3 Bluefield-2 FSC-3 Salem-5 faculty Shepherd-5/10 WLSC-3 WVSC-2 Wheeling-2
Mini-grants to travel to/participate in scientific meetings	AB-8 FSC-3 Salem-6 fac/3students Shepherd-5/25 WLSC-3 Wheeling-5
Bioinformatics workshop May/June 2002	AB-5 FSC-2 Salem-3 faculty Shepherd-5/10 WLSC-3 WVSC-5 Wheeling-1
Student summer internship programs	AB-10 Bluefield-5 FSC-4 Salem-3 students Shepherd-5/25 WVSC-3 Wheeling-6
Accelrys (formerly GCG) Omega software	AB-4 FSC-1 Salem-2 students Shepherd-3/10 WLSC-3 Wheeling-1
Participation in annual research symposium	AB-15 FSC-3 Salem-3 students Shepherd-5/10 WLSC-3

	Wheeling-3
Wisconsin package (Accelrys) software	AB-4 FSC-1 Salem-2 students Shepherd-3/10 WVSC-2
Developing medical informatics or bioinformatics software applications	AB-5 Salem-2 students Shepherd-2/10
Developing mathematical models for bioinformatics	AB-5 Salem-3 students Shepherd-5/10 WVSC-2

3. Which aspects of bioinformatics are faculty members at your institution interested in?

Program	Number of interested faculty
Gene mapping Mendelian or quantitative loci	AB-3 Bluefield-2 Shepherd-3 WLSC-2
OMIGA software training	AB-3 Salem-2 faculty Shepherd-3 WLSC-2 WVSC-1 Wheeling-1
Wisconsin Package Software Training	AB-3 FSC-2 Salem-2 faculty Shepherd-3 WLSC-2 WVSC-1
Designing oligonucleotides for PCR	AB-3 FSC-2 Shepherd-3 WLSC-1 Wheeling-1
Using National Library of Medicine software and GenBank and other databases	AB-3 FSC-2 Shepherd-3 WLSC-1 Wheeling-3
Modeling Protein Structures	AB-3 Bluefield-1 Salem-1 faculty WLSC-2

	Shepherd-2 WVSC-1 Wheeling-1
Microarray analysis	AB-3 FSC-1 Salem-1 faculty Shepherd-2 WLSC-1 WVSC-2 Wheeling-2
Proteomics	AB-3 FSC-3 Salem-1 faculty Shepherd-2 WLSC-1 Wheeling-2
Basics of flat files and relational databases	AB-3 FSC-1 Salem-2 faculty Shepherd-2
Perl programming to develop complex searching strategies for public databases.	AB-3 FSC-1 Shepherd-2
Molecular Taxonomy	AB-3 FSC-3 Shepherd-5 WVSC-1
Mathematical algorithms/models of bioinformatics	AB-3 Bluefield-1 Salem-4 faculty Shepherd-3 WVSC-2
Biology Workbench	AB-3 Shepherd-3 WLSC-1
Analysis of automated DNA sequence data	AB-3 Bluefield-2 FSC-1 faculty Shepherd-3 WLSC-2 Wheeling-1
Forensic DNA applications	AB-3 FSC-1 FSC-1 faculty Shepherd-3 WLSC-3 Wheeling-2

Others	AB-3 FSC-1 faculty WVSC-1
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PART IV: Research Development Core (RDC) Program

1. What are the overall goals for research at your institution? (Indicate official college/university policies on research in general and any requirements for research in the promotion and tenure process.)

AB-The institution has no overall goals for research. Scholarly activities are included as a requirement for promotion and tenure.

Bluefield-Get research project and environment started.

FSC-N/A

Salem-SIU has made a major commitment to research. All faculty, regardless of discipline are expected to engage in research in their field. As such research constitutes a portion of the promotion and contract renewal criteria.

Science faculty applied and basic research are emphasized at the SIU. Research activities are paired with undergraduate and graduate (MS level) teaching/training. The undergraduate research activity is a major component of the education experience at the SIU. Faculty research has resulted with 3 novel patent applications to the US patents and trademark office. It would be important to capitalize on these patents to provide much needed funds to continue to support the educational and research activities at the SIU

Shepherd-This is strongly recommended, please see answer given above with respect to promotion criteria.

WLSC-Research not required. Performed for own interest.

WVSC- The college has a strong desire to strengthen research capabilities that relate to the Land-Grant mission. All scientific research is currently administered through the Land-Grant office regardless of its application to agriculture and bioremediation.

Wheeling-“Wheeling Jesuit University is first and foremost a teaching institution, consequently, teaching performance evaluations will carry the greatest weight in professional reviews. Professional development and scholarly activity must have at its primary aim the continual improvement of faculty members in their prime role as teachers of undergraduate students.” (Faculty handbook)

2. How does your institution support research? (Describe mechanisms that are already in place).

AB-AB is a member of ACA (Appalachian Colleges Association), which provides support for research activities and travel.

Bluefield-Passively in the past, but actively interested now.

FSC-Matching funds and internal grants.

Salem- For the faculty member who has less than three modules of research there are travel funds available. In addition the University strives to assist with grant matching and resources for the faculty member.

For faculty members with three or more modules of research there are two types of support are in place. The first is via extramural grant support. Faculty are encouraged to seek grant funding from extramural source, e.g., NIH, USDA, and WV-EPSCoR, etc.

The second is in-house support. In house support includes laboratory space and equipment, varying start-up funds (\$5000-21,000), with/out technical help in the form of post-doctoral fellows, and laboratory operating funds up to \$21,000 a year for selected faculty members to support undergraduate/graduate research activities.

For student research there is funding to support the work of students in the laboratory with supply line funding. For the MS program there are various forms of support for the 4th and 5th year students. For the undergraduate science and computer science programs the school strives to assist individual students with support for special projects and to offer credit and non-credit opportunities to work with faculty and staff (in Data Center) members in mentored learning experiences.

Shepherd-Internal grants as previously listed, support through WV NASA Consortium, and support through internal Conard (Alumnus) Grants.

WLSC-No financial support. Research is supported through the school and department, not college. Travel supported by Faculty Development Committee.

WVSC- In addition to what was outlined in number 10 of Part I, the Grants office provides some assistance with identification of grant opportunities. The school has at least one grant writing workshop per year. The school provides assistance with visiting faculty. Biology has 4 or 5 visiting faculty each spring from the University of Exeter in the U.K.

Wheeling-Grant Writing Workshops and “Buy out” for course release with external funding.

3. What are the primary interests of your faculty in research (need not be biomedical)?

AB-

Yi Chen	Molecular biology parasite-host predator
John Enz	Biomonitoring
Sheikh Ahmed	Carbohydrate, Water quality, Synthesis
Davis Unger	Large predator-prey interaction
Tamanna Ahmed	Enzyme inhibition

Bluefield-Biomedical

FSC-Ecology/Molecular, Molecular, and Systematics

Salem- DNA immunization against infectious agents and tissue antigens. Molecular interaction of genes and environment. Acute and persistent infection of the nervous system.

The genetic transformation of wetland grasses (cattail and rushes) for the production of foreign proteins. Proteins targeted at the remediation of metal-polluted waters and sediments. Proteins for vaccination of migratory wetland birds who are carriers for infectious human diseases such as West Nile Virus.

Comparison of bird communities in mitigated and reference wetlands, effects of road construction on forest and riparian bird communities. Use of benthic macroinvertebrate communities to assess stream water quality.

In the Computer Science area the interest would be in modeling and working in collaborative ways with projects across institutions and within SIU.

Shepherd-These include (but are not restricted to): Immunology, monoclonal antibody production, mutational analysis, molecular biology, plasmid construction and transfection, plant steroidogenesis.

WLSC-Taxonomy, Molecular Biology, Forensics, Math in Biology.

WVSC- Invasive species ecology and Fern biology and ecology; Gary Greer
Taxonomy, systematics and evolution of elasmobranch tapeworms; Tim Ruhnke
Muscle Physiology; R. Harris
Bioremediation; Mark Chatfield
Nutrition, immunity and resistance to disease in fish; Jonathan Eya
Microbial community dynamics; David Huber

Wheeling-Quite varied. One central theme: Bring undergraduates into the research experience.

4. List all extramurally funded, scientific research projects at your institution. (Include NSF, NIH, science education grants, equipment grants, and student fellowship awards.)

AB-See Attached Sheet

PI	Project Title	Agency	Dates	Award
John Enz				
Charlie Chen				
Margie Darrah				
Sheikh Ahmed				

Bluefield-N/A

FSC-

Flood	Myxo-Taxonomy	EPSCoR	Summer 01	\$3000
Stephenson	Myxo Taxonomy	NSF	Continuing	\$200,000
Yeager	Aquatic Ecology	NASA	Summer 01	\$4,000
Yeager/Trisel	Aquatic Ecology	EPSCoR	1999	\$15,000

Salem-

Extramural awards with less than US\$10,000 are not listed. Only awards of the past 3 years are listed*

PI	Project Title	Agency	Dates	Award
Lai, P.K.	Impact of infection on signal transduction in the neural system	Japan Health Science Foundation	Oct/1999 to Oct/2002	*
Rogers, SMD	Characterization of transgenic wetland Juncus plants for phytoremediation	NASA-EPSCoR	2001-2002	*
Ueda, T	Minority Graduate student fellowship	NSF	1997-2002	*
Lai, P.K.	Mapping of viral genes important to Borna disease	NIH	1998-2001	*
Rogers, SMD	Genetic transformation of the wetland plants cattail and bulrush for mercury phyto-remediation	NASA-EPSCoR	2000-2001	*
Rogers, SMD	Transformation and regeneration of wetland monocots for phytoremediation.	USDA	1999-2001	*
Clinton, D	Atomic Absorption Spectrometer equipment	NSF-EPSCoR	1999	*
Edinger, B	Effects of Bridges on Living Syst..	WV-DOH	1998-Dec 2001	*
Edinger, B	Impacts of road proximity and vegetation changes on bird and mammal diversity and population density	WV-DOH	2000-2002	*
Malik, TH	Persistent infection by Borna disease virus	NASA-EPSCoR	2000-2001	*

Shepherd-

PI	Project Title	Agency	Dates	Award
Warburton	Millipore	WV EPSCoR	1995	9,337.14
Warburton	Res. Initiation	WV NASA	1998	1,000.00
Warburton	UV/Vis Spec	Pgh Spec Soc	1998	5,000.00
Lidgerding	Centrifug	WV EPSCoR	1999	5,000.00
Lidgerding	Electrophor.	WV EPSCoR	1993	4,295.00
Lidgerding	ELISA	WVEPSCoR	1996	9,720.00
Wing	Electropor	WV EPSCoR	2001	12,510.00
Lidgerding	Research grant	WV NASA	1999	1,500.00
Warburton	Sabatical	US NPS	2001	14,500.00

WLSC-Blank

WVSC-

M. Chatfield	BIOPLEX	USDA	2001-2002	\$450,000
T. Ruhnke (coPI)	Enhancing taxonomy in cestodes	NSF	2001-2003	\$749,994
J. Eya	Aquaculture waste control	USGS	2000-2003	\$128,721

Wheeling-

Norm Duffy		NSF-EPSCoR		\$64,000
Mike Baird		NSF-EPSCoR		\$100,000
Norm Duffy	Syn of for photovoltaic	NASA		\$9,020

5. Which departments are actively engaged in research? List departmental chair or contact person. ("Actively engaged" refers to individuals that are funded or seeking funding.)

AB-Division of Natural Science and Chair, Dr. Majorie Darrah

Bluefield-Arts & Sciences: Dr. James Voelker

FSC-Biology, Phil Mason and Chemistry, Erica Harvey

Salem-Department of Bioscience, Patrick K. Lai, Chairperson and Department of Mathematics and Technology, Sandra Gum, Chairperson

Shepherd-Biology; Dr. P. Simpson, Chair; Chemistry, Dr. E. Volker, Chair; and Environmental Institute, Dr. E. Snyder, Chair.

WLSC-Biology-funded by WLSC (Department of Science)/WVNASA and Physics

WVSC-Biology: Dr. Bonnie Dean, Chair, deanbo@mail.wvsc.edu, 766-3126 and Chemistry: Dr. Hal Pinnick, Chair, pinnicha@mail.wvsc.edu, 766-3292.

Wheeling- Bilogy – Ken Rastall and Chemistry – Norman Duffy

6. The overall WV-BRIN goals are to support development of (1) cellular and molecular biology and (2) cardiovascular research.

- a. Are there ongoing research projects in either of these areas? If yes, please briefly describe.

AB- Yes, Yi Chen's project – development of molecular markers in detecting parasitism and predation.

Bluefield – N/A

FSC- Al Magro, Cell line research?

Salem - DNA vaccination against the Borna disease virus to map the epitopes important to the priming, effector and tolerance responses.

Molecular studies to determine how antigens expressed in the brain are recognized by immunocytes.

Molecular studies of Borna disease virus infection to determine its mode of replication in mammalian cells and the impact on the cellular signal transduction pathway.

Molecular studies on the neuropathogenesis of Borna disease.

The transformation of genes coding for vaccination proteins for the suppression of diseases carried and spread by migratory waterfowl, that cause illness in humans.

The production of wetland plants that express single gene pathways that code for enzymes that target the reduction in toxicity of heavy metals problematic in wetland waters and sediments.

Shepherd- Development of monoclonal antibody assays with the USDA (Lidgerding)

Mutational analysis of HLA-A*0201 (Warburton)

Slime Mold Classification by Molecular Biology (Landolt)

WLSC-None externally funded. Work with Marshall to genetically identify tomatoes.

WVSC- Tim Ruhnke is using molecular techniques to study the taxonomy, systematics and evolution of elasmobranch tapeworms.

Mark Chatfield has studied the molecular biology & physiology of soybeans at WVSC for 10 years and has done some work in acid mine microbiology.

Wheeling-Glucose transporter expression in aortae of hypertensive vs normotensive rats.

Characterization of the genome of filin

b. Are there ongoing research interactions with other WV-BRIN partner institutions? If yes, list the institution(s) and briefly describe.

AB- Wheeling Jesuit C.S. Research and Marshall Biomonitoring Research

Bluefield-N/A

FSC-Myxo systematics with WV

Salem- Yes, but not in cellular and molecular biology or cardiovascular research.

Research interaction on-going with WVU on a research project assessing the impacts of road proximity and vegetation changes on bird and mammal diversity and population density. Plant ecologist and soils scientist at WVU providing vegetation parameters.

Research project funded by WV Division of Highways based out of Salem I.U. June 31, 2002 completion date.

Shepherd-John Landolt with Colleague at Fairmont State

WLSC-No.

WVSC-Dr. Eya is in collaboration with WVU on a trout yield verification trial.

Wheeling- In the summer of 1997, a WVU student conducted research in the lab of Will McCumbee (Physiology) and presented her results at the WV ACAD of Sciences in 1998
Leslie Quinn often discusses projects with Will McCumbee

c. What new projects could be developed in collaboration with WV-BRIN partner institutions? Identify faculty members who might participate. (limit to one page)

AB-Unkown at this time. We are exploring possibilities.

Bluefield-We are interested in developing collaboration projects with BRIN but do not have any going on at the present time.

FSC- Molecular Ecology, Phil Yeager
Forensics & Systematics, Mark Flood
Systematics, Steve Stephenson
Cell Biology, Al Magro
Molecular, Steve Roof

Salem- Lai: DNA vaccination against bacterial and viral diseases, as well as to tissue antigens to induce anti-tumor responses.

Lai: Persistent infection, cytokine production, stress and cardiovascular diseases.

Lai: Promoter regulation and mammalian gene expression.

Edinger: Interaction of patterns of bird host population vagility and infection rates for zoonoses (e.g., West Nile virus), genotypic characterization of strains isolated.

Roy: Data collection on rational use of aspirin depending on age/blood pressure/cholesterol level in CVD related patients.

Gum, Lee, Phillips, Weaver: interested in workshops and in modeling work in conjunction with others.

Shepherd-Blank

WLSC-Robert Kreisberg, Jarrett Aguilar, and Roger Seeber

WVSC- R. Harris would like to collaborate with the Physiology Department at Marshall to study contractility in smooth muscle from a variety of nonmammalian vertebrates. The basic mechanisms involved in the contractility and control of activity of vascular smooth muscle are unclear. I feel that studying the vascular systems of species that are highly adapted to specific environments, and are perhaps much more sophisticated than mammals, may provide insights into regulation of contractility in smooth muscle that may be less apparent in mammalian species. I would like to study some very specific molecular, tissue and systemic adaptations in turtles, frogs, and fish. This information should provide some insights into the general workings of vertebrate cardiovascular system and may even have application to blood pressure in mammalian systems.

Wheeling-Blank

7. What equipment, software or expertise exists at your institution which might benefit other WV-BRIN member institutions?

AB-

1. - HPLC
2. GC
3. AA
4. UV/Visible
5. NMR
6. IR
7. Thermocycler
8. Centrifuges
9. Computer Haptics Device

Bluefield- 2 Atomic Absorption Machines and 1IR

FSC-Fluorescent PCR, Epifluorescent Scope, PCR, Gel beds, and Other molecular instruments etc.

Salem- Lai: Expertise in molecular biology, T cell responses, antigen recognition, DNA vaccination, monoclonal antibodies. Expertise in persistent viral infection, especially those of Borna virus, human immunodeficiency virus, and Epstein-Barr virus and their immune responses.

Rogers: Expertise in plant cell culture and the regeneration of some of the most ecologically important, dominant and widespread freshwater wetland plants.

Edinger: Bird species identification, bird banding/mist-netting experience and permit, familiarity with bird populations and habitat types in WV.

Roy: Development of chemical & instrumental analytical techniques- HPLC/GC/GC-MS/NMR.

Equipment and facilities:

One fully equipped BCL-3 bio-containment facility with 1 x 200 sq ft animal cell tissue culture room, 1 x 200 sq ft biotechnology room, and 1 x 80 sq ft animal room in the science building.

One 600 sq ft green house for transgenic plants.

One animal tissue culture room (400 sq ft) with 2 Class II total exhaust laminar flow hoods.

3 additional Class II total exhaust laminar flow hoods and 2 laminar horizontal flow hoods in the science building

3 Beckman J2-HS centrifuge with rotors.

1 Beckman Optima L-70K ultracentrifuge with rotors

1 Beckman L-60 ultracentrifuge with rotors.

2 bench-top low speed centrifuge

9 microfuges.

2 inverted microscopes; 4 research microscopes and 2 epifluorescence microscopes.

4 Forma CO2 automatic control incubators.

4 plant growth chambers

2 environmental chambers

3 orbital shaker bacterial incubators

3 super cooled (-80C) chest freezers

3 liquid nitrogen tanks for cryopreservation of tissue cells.

1 Hope Micomax X-ray film developing machine.

1 Packard Cobra II gamma counter

1 Packard 1600TR scintillation counter
 2 hybridization ovens,
 5 Geiger counters
 6 thermocycler for PCR (one in 96 wells format).
 1 Perkin Elmer Bioassay reader
 4 EC575 power pack
 2 EC105 power pack
 5 EC100 power pack
 Numerous protein gel electrophoresis and Western blot apparatus
 2 tube gel apparatus for protein electrophoresis and isoelectric focusing.
 Numerous mini, midi and maxi gel electrophoresis apparatus.
 4 manual DNA sequencing gel apparatus.
 1 sequencing gel drier.
 1 protein gel drier.
 2 (80 sq ft) walk-in cold room.
 1 electroporator for bacterial transformation
 1 electroporator for mammalian cell transfection.

SIU has a student to computer ratio of 7 to 1.

Machine Room

Name	Brand	Description
1 Mickey	Vax	6000-630
1 Minnie	Vax	6000-640
1 Stunix	IBM	Netfinity 5100
1	IBM	Additional Storage Cabinet
1 Shaggy	MicroVax	3100-40
4	Generic	Linux Machines
1	Digital	DecArray
1	Digital	TU81Plus
4		Infinity SR
3		Sting Ray Disk Array
3		Sting Ray Server
1	HP	88780B Tape Drive

Network

Machine Room

Switch

Router

	Cabletron	SmartSwitch 6000
	Cabletron	Smart Switch Router 8600
	Cabletron	Multimedia Access Center M8FN8
Admin	Cabletron	SmartSwitch 6000
LRC	Cabletron	SmartSwitch 6000
RCC	Cabletron	SmartSwitch 6000
Hoffhimer	Cabletron	SmartSwitch 6000
Montgomery	Cabletron	SmartSwitch 6000
TED	Cabletron	Vertical Horizion Switch
Randolph	Cabletron	Vertical Horizion Switch

Brewster	Cabletron	Vertical Horizon Switch
Oak, Birch, Maple	Cabletron	Vertical Horizon Switch
2	Digital	Line Printer LG01
1	Digital	Line Printer LG06
Wireless System		
54	Cabletron	Access Points
273	Cabletron	Wireless Cards

Shepherd- Slab and Tube pulsed filed electrophoresis, Class II Laminar flow hood
 High Speed Centrifuge, ELISA reader/washer, CO2 37oC Incubator
 HPLC (autoinjector) GCMS PCR Thermocycler, Liq. N2 Storage
 1H/13C 270 Mhz NMR FTIR Temp. Control growth chambers
 Fluorescent/UV phase contrast microscopy Electroporator

WLSC-PCR Machine, Elisa plat reader, and Low pressure chrom system

WVSC- The departments of Biology and Chemistry at West Virginia State College are located in Hamblin Hall. The building was erected in 1952 and subsequently expanded and renovated in 1989. This 70,000 square foot facility also houses the Physics Departments and Computer Services. All faculty and staff in the science departments have networked Pentium computers and access to HP Laserjet 5 Printers. In addition, faculty have access to digital still and video cameras, a flat-bed scanner and a Cannon color printer designed for developing teaching resources. In addition, an LCD projector is available and most instructors have incorporated Microsoft Power Point presentations into their teaching. The building also houses a student computer lab with twelve stations that are internet capable and run Microsoft Office 97. Faculty and students use these tools for classroom and research activities.

The College has a strong commitment to foster both faculty and student research programs. In the past five years, for example, the College has invested over \$100,000 in state of the art equipment for biological research including purchase of thirty-three UNICO microscopes with either semi-plan for full-plan optics, thirty stereoscopes, and two Leica research microscopes. The college has also recently funded a state of the art image analysis laboratory and the establishment of an Institute of Applied Microbiology. The WVSC administration continues to support research activities for faculty and students. The faculty development program provides support for faculty travel and research. The WVSC Foundation provides small summer stipends for part-time student research. Faculty are encouraged to obtain extra-mural funding and upon receipt, may be given release time to devote to research.

The Biology and Chemistry faculty is dedicated to involving undergraduate students in research programs. The departments each have a directed student research credit series, which provides a mechanism for students to conduct research with professors involved in scholarly research and publication. Students are involved in all facets of research including literature search, grant preparation, data collection, analysis of results, presentation of research at local and state science meetings, and authorship of manuscripts which are submitted to peer reviewed journals. We feel that students emerging from this research program are well prepared for graduate study. The success of the biology program at WVSC is reflected in the performance of students following graduation. From 1989-97, eighty-five

students graduated from WVSC with a B.S. in Biology. Of those graduates, thirty-one (36.4%) successfully obtained employment related to Biology and twenty-two (25.8%) matriculated to graduate or professional school.

Teaching laboratories in the Chemistry and Biology departments include twelve laboratories which are approximately 600-800 sq. ft. in size. These labs are dedicated as follows:

- Two general/inorganic labs
- Two general biology labs
- Physical chemistry lab
- Instrumental analysis/biochemistry lab
- Organic lab
- Anatomy and physiology lab
- Microbiology lab
- Zoology lab
- Botony lab

Research facilities in the Science building include the following:

- 1300 sq. ft. core molecular biology facility with an accompanying darkroom, instruments lab, and transfer room
- 300 sq. ft. image analysis lab
- 810 sq. ft. microbiology research lab
- 450 sq. ft. physiology lab
- 625 sq. ft. aquaculture facility
- 280 sq. ft. histochemistry lab
- Anaerobic digester pilot plant
- Greenhouse with 300 ft. of bench space
- Two 300 sq. ft. organic chemistry research labs
- Two 400 sq. ft. inorganic chemistry research labs

The list of equipment available in the Chemistry and Biology departments at West Virginia State College which may be used for this project include the following:

- Pharmacia FPLC with UV-MII monitor, fraction collector, dual chart recorder and Mono Q, Mono S and Superose 6 columns.
- BioRad Econo- Low Pressure chromatography system with columns, peristaltic pumps, fraction collector, in-line absorbance detector and controller.
- Waters HPLC with 600E system controller, 712 WISP injection system and Model 990 photodiode array detector.
- Hewlett-Packard 84552 diode array spectrophotometer, HP 9153C computer with UV/VIS Chem Station software for data acquisition and analysis.
- Refrigeration equipment includes a Fischer refrigerator/freezer, two Kelvinator sliding door chromatography refrigerators and a So Low -80 C freezer.
- Centrifuges include a RC-5B refrigerated centrifuge, Beckman T2-100 ultracentrifuge, two Eppendorf 4515 microfuges and two clinical centrifuges.

- Electrophoresis equipment includes a BioRad mini-protean-II unit, IBI 3000 volt sequencing power supply & three EC 300 volt power supplies, IBI, Stratagene & BRL DNA sequencing gel units, and ten Life Technology & IBI submarine gel units.
- Orion 720 & SA 520 pH meters with several Orion selective ion probes, four VWR Dissolved Oxygen meters, Mettler AE50 analytical balance, Ohaus 400 balance, thermolyne heat blocks, two Savant refrigerated traps, Speed Vac, BioRad slab dryer, Fotodyne UV-light table and camera.
- Packard 1900 liquid scintillation counter, Bioscan QC-2000 counter for 32P and 125I, and two Victoreen survey meters.
- Autoclaves, laminar flow hoods, incubators, and a Barnstead water still with DI cartridge and conductivity meter, E-Pure Type I water purification system.
- Percival environmental chamber with microprocessor controlled light, temperature and humidity.
- Cary 1 UV/VIS scanning spectrophotometer with a 6x6 temperature controlled cell block. Enzyme kinetic software is available
- Perkin Elmer Atomic Absorption Spectrophotometer with lamps for various metals.
- Hewlett Packard Gas Chromatograph with thermal conductivity & flame ionization detectors.
- BRL Cell-Porator Electroporation System for bacterial, yeast, plant and animal cells.
- Sper Scientific Light meter.
- Two Perkin-Elmer Model 2400 PCR Thermal cyclers
- Turner fluorometer
- Dupont ACAIV discrete chemical analyze
- IEC Minotome Plus cryostatic microtome
- Varian 300 MHz NMR
- Mattson FTIR
- Hewlett-Packard GS/MS
- Hewlett-Packard Diode Array UV/VIS spectrophotometer
- Ocean Optics Optical Spectroscopy Station
- Perkins-Elmer Atomic Absorption Spec.
- Varian HPLC
- Miscellaneous gas chromatography equipment

Wheeling-

Biology: Cell Culture: Laminar flow hood, Co2 incubators
Flourescent microscope, pcr,rna-dna-protein electrophoresis, protein transfer, elisa, refr. Table top centrifuge

Chemistry: Varian satvrn 2000 gas chromatograph mass spec, anasazi multinuclear nmr, 2gas chrom 2 ftir, hplc, uvvis rloading spec, spectrofluormeter

8. What new equipment, software or expertise would be needed for the further development of existing or new biomedical research projects?

AB-

GCG Wisconsin Package
Mass spec.
Hibridization Oven

DNA Auto Sequencer
Gradient HPLC
-80⁰ C Freezer
FT – IR

Bluefield-

DNA Analysis Equipment
Refrigerators and Incubators
Other-depending on the project we undertake
Supporting WV-BRIN

FSC-

Ultra centrifuge and Fluorescent plate reader

Salem-

a. Rogers: Equipment - A Microprojectile Bombardment DNA Introduction piece of equipment for the mechanical introduction of particles carrying desirable foreign genes for the introduction into wetland plants. Expertise in the optimization of DNA introduction into plant.

b. Edinger: For possible WNV monitoring/characterization project:

GPS receiver

Mist nets (for bird capture)

GIS software for digital recording of locations into standard GIS format. Possible collaboration with WVU lab.

c. Lai: Arrangement to use confocal microscopy, flow cytometry (sorting and analyses), electron microscopy at WVU core facility.

d. Computer Facilities for bioscience and computer science: Packetshaper 4500 and support to maximize current access with 1-3 hours of Sycom telephone integration support and at least 2 modeling work stations with modeling software and a storage/server.

Shepherd-Fraction collectors UV-Vis DB Spec Ultracentrifuge and Low Temp CO2 Incubator

WLSC-Since we are unsure of the possible projects, we are unsure of needed equipment. Would like computer/projection system in lab for allowing protein modeling/sharing of data with all students in lab.

WVSC-

- confocal microscope
- Grass polygraph with force transducers, etc.
- organ & tissue baths
- tissue grinder
- digital video camera

Wheeling-

-70 freezer, ultracentrifuge, and dna squencer

9. What factors are considered impediments to research at your institution?

AB-Limited institutional support, large teaching loads, research considered an extremely small part of tenure/promotion.

Bluefield-Faculty time and equipment.

FSC-Teaching load.

Salem- At SIU the support of an addition of a faculty member in computer science would greatly strengthen our ability to prepare network managers and researchers for the future.

In general, research funding are increasingly difficult to obtain to support research and postdoctoral assistance. This is more difficult for faculty in the PUI with higher teaching load. Although the institution is flexible in granting release time, once an extramural grant application becomes successful. Seed grants and start-up grants are greatly needed.

Another impediment is the availability of some of the more expensive equipment such as photo imager. Funds are needed to up-grade equipment also, e.g. laminar flow barrier for animals housed in the BCL-3 facility and new airflow handler.

Number of research journals are limited because of the limited budget in a small institution.

Adequate financial support to attend national and international conferences also will help, along with funds for travel to be used by the faculty members to develop ties with national researchers and other BRIN schools.

Shepherd-Release time for faculty and funds.

WLSC-Time/money/teaching load

WVSC-1. Library materials!!!!!!!!!!!!!!!!!!!!

2. The growth of research capabilities while modest has far outpaced the ability of administrative logistics to adapt to academic life in the 21st century.
3. Sufficient lab space & problems remodeling the existing facility; this situation is likely to improve however.

Wheeling-Need to share research space with other faculty, required 12 hr credit load/faculty member/semester, and lack of departmental funds for research.

PART V: Bionformatics Core (BC) Program

1. Who is the person responsible for data network connectivity and support at your institution?

AB-

Name: Bruce Blankenship

Phone Number: 457-6225

Email address: blankenship@ab.edu

Bluefield-

Name: Tom Cook
Phone Number: (304) 327-4111
Email address: tcook@bluefield.wvnet.edu

FSC-

Name: Gary Cuppett
Phone Number: 367.4131
Email address: gcuppett@mail.fscwv.edu

Salem-

Name: Patrick Bell
Phone Number: 304-5254
Email address: bell@salem.wvu.edu

Shepherd-

Name: David Thompson
Phone Number: (304) 876-5395
Email address: dthomps@shepherd.edu

WLSC-

Name: Bruce Stewart
Phone Number:
Email address:

WVSC-

Name: Mr. Robert Huston, Director, Computer Services
Phone Number: 766-3261
Email address: hustonrh@mail.wvsc.edu

Wheeling-

Name: Dan Feeley
Phone Number: 243-2423
Email address: feeley@wju.edu

2. **Who is the person responsible for video conferencing/distance education at your institution?**

AB-

Name: Bruce Blankenship
Phone Number: 457-6225
Email address: Blankenship@ab.edu

Bluefield –

Name: Dr. Tom Blevins
Phone Number: (304) 327-4059
Email address: tblevins@bluefield.wvnet.edu

FSC-

Name: Larry Haffner

Phone Number: 367.4131

Email address: lhaffner@mail.fscwv.edu

Salem-

Name: Tina Tyras

Phone Number: 304-5642

Email address: tina@salemiu.edu

Shepherd-

Blank

WLSC-

Name: Rosey Miller

Phone Number:

Email address:

WVSC-

Name: Mr. Matthew Wood, Manager - Operations, Ed. Net.

Phone Number: 766- 4177

Email address: matt@ednet.wvsc.edu

Wheeling-

In transition

3. Does your institution provide resources and infrastructure for online deployment of course material?

AB – Yes, a limited amount

Bluefield – Yes

FSC – Yes

Salem – Yes

Shepherd – Yes

WLSC – No

WVSC – Yes

Wheeling - Yes

If so, what resources are used (e.g., WebCT)?

AB – Web CT is provided and Web page space on a server

Bluefield – Blank

FSC-WebCT

Salem – SIU uses WebCT. At this point two science courses are entirely on-line and ready to go but have not yet been taught in that mode. Several science courses including Organic Chemistry and Biology have put portions of their courses on WebCT.

Shepherd – Web CT account holder training by Myra Newbraugh

WVSC – Web CT

Wheeling - Course Info, Dial up Internet Access, WebCT, Training Workshops, Digital camera, Scanner

If not, do you use any platforms outside your institution (e.g., blackboard.com)?

WLSC-Blank

- 4. At the December 3, 2001, WV-BRIN Steering Committee meeting, online access to journals was suggested as a needed resource. Please indicate specific journals that you need to access online to support the WV-BRIN objectives.**

AB – Blank

Bluefield – N/A (at this point)

FSC – Nucleic Acid Research

Salem - J. Pharm Sci., JAMA, Lancet, BMJ, Cell, PNAS, Virol., EMBO J., New Eng. J. Med., J. Biol. Chem., Nucleic Acid Res., Curr. Biol., J. gen Virol., Annual Reviews, Trends, J. Cell boil., Neuron, Immunol., Arch. Virol., J. Clin. Invest., J. Exp. Med., Immunol Review. Gene and Dev. For animal vectoring research is to be conducted, the leading ornithological and mammology journals would be a needed resource. The package provided by BioOne (800.00-1,000.00/year, complete access) would cover these journals, including Auk, Condor, Wilson Bulletin, Journal of Mammology, American Zoologist, American Midland Naturalist. Plant Physiology, Plant Cell Reports, Plant Cell Tissue and Organ Culture, Plant Science, Aquatic Botany, Plant Molecular Biology, Planta. For advanced programming it would be good to have Algorithma. A journal for modeling would be beneficial as well.

Shepherd - Cell, J Cell & Mol. Biol., Nature Mol. Struc., J. Virol., J. Immunol., Immunol Today Methods Virology, J Immunol Methods

WLSC – Cell/Nature/Journal of Immunology

WVSC- Comp. Biochem. Physiol., Can. J. Physiol. Pharmac., Pfluegers Arch.- Eur. J. Physiol. Am. J. Physiol., J. Exper. Biol.

Wheeling – American J of Physiology, PNAS, Biochem J

- 5. Please list or describe bioinformatics or computer-related and telecommunications-related impediments to research at your institution.**

AB – Blank

Bluefield – None at this point

FSC – Blank

Salem - The University needs to be able to provide greater bandwidth and to acquire equipment to optimize the bandwidth that we currently have. (T-1) The institution will need to add additional T-1 lines or to have a configuration that will create an equivalent solution. In order to do molecular modeling the computing capability of the campus will need to be upgraded to include workstations capable of supporting modeling software.

Shepherd – Shepherd is in Jefferson County and is not part of AT & T. This may pose problems for networking.

WLSC – There is a true lack of compute resource at WLSC.

WVSC – Blank

Wheeling – Lack of experience in Bioinformatics

PART VI: General Questions and Comments

Please use this space to raise any questions, provide comments, or raise concerns about any aspect of the WV-BRIN program.

AB - The BRIN program, although still in its planning stage, is a little unclear to us. Specifically, the amount of funding available for equipment, faculty salaries, and the procedure that one is to go through to request or procure these funds.

Bluefield - Bluefield State College is a teaching institution therefore faculty spend their time teaching and have to spend 10 hours a week in office hours. Research is an area the college is just turning to in order to have dollars to maintain present levels. The biggest impediment to research is equipment and money to operate a research program. Time of faculty is also a large impediment, due to the number of classes many faculty teach. Some teach as many as 16 hours. We do not have resource people to cover for a faculty member. If we have the money for adjuncts, we still have trouble finding them due to the rural area. We have the faculty that are interested in research but do not have the time or equipment. We really need money to pay student research assistants or technicians to aid in getting research programs underway. Once our faculty and students get interested in research as a result of summer programs, research will be able to take off. But we still need equipment and money so that students and faculty can continue research at home college.

FSC – Blank

Salem - Course on Health research methodologies would be useful for the students working in this WV-BRIN program. Also funds should be made available to students at the PUI's to perform summer internship at the PUI's. If funds are made available to PUI faculty to perform research, it should be reasonable to assume that students who work under the project will like to continue to work on these projects during the summer. When students have been performing undergraduate research throughout the academic year and have take special training with WVBRIN on grant writing, it serve to reason that they themselves should write their our research proposal for their summer project, be they be performed in the home PUI or at the senior partner institutions. Students and faculty at the PUI will welcome the input of the senior partner institutions, especially when some experiments can only be performed by use of sophisticated equipment available at the core facility. Collaborative efforts with faculty at the core will facilitate the additional training. Competitive funding of faculty research at the PUI, provide funding for summer internship at the PUI's with collaboration with the senior partner institutions will ensure the flow of BRIN funds to the PUI's.

Shepherd - The faculty were first introduced to NIH-BRIN in a divisional meeting in late January. There has been some interest, but it would be beneficial if Core directors could visit and provide further information. The summer program has elicited interest from faculty and students alike and this should help feed interest in the future.

WLSC- Blank

WVSC – Blank

Wheeling – Blank

